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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,036	06/21/2000	Esmaeil Yousefi	22-0134	7772

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EXAMINER	
LY, NGHI H	

ART UNIT	PAPER NUMBER
2686	4

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/599,036	YOUSEFI ET AL.	
	Examiner	Art Unit	
	Nghi H. Ly	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-22 and 24-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26 and 27* is/are allowed.

6)☒ Claim(s) *1-11,13-22 and 24-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi et al (US 6,275,518).

Regarding claims 1 and 7, Takahashi teaches a method for providing a variable hop cycle beam laydown (see Abstract), the method comprising: transmitting first downlink beam energy for first cells according to a first hop cycle (see column 3, lines 50-64), transmitting second downlink beam energy for second cells according to a second hop cycle different than the first hop cycle (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells". Therefore, the teaching of Takahashi inherently includes second downlink beam energy for second cells), and transmitting transition downlink beam energy for transition cells according to a transition hop cycle for transitioning between the first hop cycle and the second hop cycle (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells" and

"a plurality of predetermined radio frequencies are hoped at regular time intervals". Therefore, the teaching of Takahashi inherently includes transmitting transition downlink beam energy for transition cells).

Regarding claims 2 and 8, Takahashi further teaches transmitting first downlink beam energy comprises transmitting downlink beam energy for a first hop pair (see column 3, lines 50-64), wherein transmitting second downlink beam energy comprises transmitting downlink beam energy for a second hop pair (also see column 3 lines 50-64), and wherein transmitting transition downlink beam energy comprises transmitting downlink beam energy for a transition hop pair (see column 3 lines 50-64).

Regarding claims 3 and 6, Takahashi further teaches transmitting transition downlink beam energy comprises transmitting power gated downlink frames (see column 5, lines 14-18).

Regarding claims 4 and 13, Takahashi further teaches each transmitting step comprises transmitting at least a first frequency and first polarization (see column 3, lines 35-48).

Regarding claim 5, Takahashi further teaches transmitting second downlink energy comprises transmitting second downlink beam energy according to a second hop cycle that provides additional bandwidth to meet bandwidth needed for one of the second cells (see column 3 lines 50-64, Takahashi teaches "frequency hopping in different cells".

Therefore, the teaching of Takahashi inherently includes second downlink beam energy for second cells).

Regarding claims 14 and 16, Takahashi further teaches the first, second, and transition cells are adjacent cells (see column 3, lines 25-31).

Regarding claim 15, Takahashi further teaches the first, second, and transition cells are non-adjacent cells (also see column 3, lines 25-31 "overlap with each other").

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 6,275,518).

Regarding claims 9-11, Takahashi teaches variable hop cycle beam in claim 7. Takahashi does not specifically disclose the first hop cycle is a 50-50 or 75-25 or 50-25 hop cycle.

However, such hop cycle would have been obvious since the particular hop cycle could have been determined by the inventors' needs e.g., use a hop cycle which can prevent signals being interfered in a most optimal way during the transmission.

6. Claims 17-22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 6,275,518) in view of Martin et al (US 6,061,562).

Regarding claim 17, Takahashi teaches apparatus for generating a variable hop cycle beam laydown (see abstract), the apparatus comprising: a waveform generator producing a first downlink beam (see column 3, lines 50-64), second downlink beam (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells". Therefore, the teaching of Takahashi inherently includes second downlink beam), and a transition downlink beam and directing the second downlink beam between second feed paths to second cells and directing the transition downlink beam between third feed paths to transition cells (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells" and "a plurality of predetermined radio frequencies are hoped at regular time intervals". Therefore, the teaching of Takahashi

inherently includes a transition cells, a transition downlink beam and a second cells) and a second hop cycle different than the first hop cycle and a transition hop cycle (also see column 3 lines 50-64, "frequencies are hopped et regular interval" and "replaced with another pattern") and at least one of the first downlink beam is directed between first feed paths to first cells (see Abstract, hoping pattern between the cells).

Takahashi does not specifically disclose at least one switch directing the downlink beam between first feed paths to first cells and at least one feed path selection input coupled to the at least one switch and a memory for storing downlink beam type definitions that direct the feed path selection input to control the switch according to a first hop cycle.

Martin teaches at least one switch directing the first downlink beam between first feed paths to first cells and at least one feed path selection input coupled to the at least one switch (see column 1, lines 59-67) and a memory for storing downlink beam type definitions that direct the feed path selection input to control the switch (see column 2 lines 43-46) according to a first hop cycle (see column 4, lines 61-67, also see column 6, lines 21-23, "a single hop across ASN 14 comprising two links 50").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Martin into the system of Takahashi in order to eliminate the need for base station equipment and facilities associated with terrestrial system (see Martin, column 2, lines 51-52).

Regarding claim 18, the combination of Takahashi and Martin further teaches a power gating circuit coupled to the waveform generator for gating power in the transition downlink beam (see Martin, column 9, lines 8-10).

Regarding claim 19, Takahashi further teaches the first, second, and transition downlink beams comprise frames with a header field and a payload field (see column 5 lines 14-18).

Regarding claim 20, the combination of Takahashi and Martin further teaches the first hop cycle directs additional bandwidth to one of the first cells to meet bandwidth need (see Martin, column 4 line 63 to column 5, lines 3).

Regarding claims 21 and 22, Takahashi teaches variable hop cycle beam in claim 17. Takahashi does not specifically disclose the first hop cycle is a 50-50 or 75-25 hop cycle.

However, such hop cycle would have been obvious since the particular hop cycle could have been determined by the inventors' needs e.g., use a hop cycle which can prevent signals being interfered in a most optimal way during the transmission.

Regarding claim 24, Takahashi further teaches the first, second, and transition cells are adjacent cells (see column 3, lines 25-31).

Regarding claim 25, Takahashi further teaches the first, second, and transition cells are non-adjacent cells (also see column 3, lines 25-31 "overlap with each other").

Allowable Subject Matter

7. Claims 26 and 27 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 26, Takahashi teaches variable hop cycle beam laydown (see abstract) comprising: first cells supported by a first hop cycle (see column 3, lines 50-64, second cells supported by a second hop cycle different than the first hop cycle (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells". Therefore, the teaching of Takahashi inherently includes second downlink beam energy for second cells), and transition cells supported by a transition hop cycle for transition between the first hop cycle (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells" and "a plurality of predetermined radio frequencies are hoped at regular time intervals". Therefore, the teaching of Takahashi inherently includes transmitting transition downlink beam energy for transition cells).

Takahashi fails to teach the transition hop cycle comprises downlink beam energy in a first transition cell a first percent of a time period, downlink beam energy in a second transition cell a second percent of the time period, and a power gated downlink beam for a remaining percent of the time period.

Regarding claim 27, Takahashi teaches apparatus for generating a variable hop cycle beam laydown (see abstract), the apparatus comprising: a waveform generator producing a first downlink beam (see column 3, lines 50-64), second downlink beam (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells". Therefore, the teaching of Takahashi inherently includes second downlink beam), and a transition downlink beam and directing the second downlink beam

between second feed paths to second cells and directing the transition downlink beam between third feed paths to transition cells (also see column 3, lines 50-64, Takahashi teaches "frequency hopping in different cells" and "a plurality of predetermined radio frequencies are hoped at regular time intervals". Therefore, the teaching of Takahashi inherently includes a transition cells, a transition downlink beam and a second cells) and a second hop cycle different than the first hop cycle and a transition hop cycle (also see column 3, lines 50-64, "frequencies are hopped et regular interval" and "replaced with another pattern").

Martin teaches at least one switch directing the first downlink beam between first feed paths to first cells and at least one feed path selection input coupled to the at least one switch (see column 1, lines 59-67) and a memory for storing downlink beam type definitions that direct the feed path selection input to control the switch (see column 2, lines 43-46) according to a first hop cycle (see column 4, lines 61-67) and a power gating circuit coupled to the waveform generator for gating power in the transition downlink beam (see column 9, lines 8-10).

Takahashi and Martin, alone or in combination fails to teach the transition hop cycle comprises downlink beam energy in a first transition cell a first percent of a time period, downlink beam energy in a first transition cell a first percent of a time period, downlink beam energy in a second transition cell a second percent of the time period, and power gated downlink beam for a remaining percent of the time period.

Response to Arguments

8. Applicant's arguments filed 10/30/2003 have been fully considered but they are not persuasive.

On page 11 of applicant's remarks, applicant argues that Takahashi does not teach a transition between two different hop cycles by transmitting downlink beam energy to transition cells according to a transition hop cycle.

The examiner, however, disagrees. Takahashi teaches a plurality of cells are located adjacent to each other (see column 3, lines 26-31) and a hopping pattern defining the order of radio frequencies is replaced with another hopping pattern from the next hopping timing during communications to avoid the interference caused in the frequency hopping in different cells (see column 3, lines 55-61). In Takahashi, "a plurality of cells" inherently includes "a transition cells" in between two cells (or a cell in between two cells reads on applicant's transition cell) *and* each "hopping pattern" defining the order of a radio frequency for each cell. Therefore, each cell in between two cells (*or* "a transition cells" as claimed by the applicant) must receive a frequency that is different from two adjacent cells (*or* in order to avoid interference between adjacent cells, the frequency that is transmitted by the radio station to the cells in between two cells (*or* "a transition cells") must be preset based on the frequencies of two adjacent cells *or* according to a transition hop cycle of two adjacent cells as claimed) in order to avoid the interference caused in the frequency hopping in different cells (*or* in between two different hop cycles as claimed).

On pages 12-13 of applicant's remarks, applicant further argues that Takahashi does not teach transition cells supported by a transition hop cycle for transitioning

between a first hop cycle and a second hop cycle *and* Takahashi does not mention any sort of transition hop cycle or the use of transition cells *and* transmitting downlink beam energy for transition cells according to a transition hope cycle for transitioning between the first hop cycle and the second hop cycle *and* a variable hop cycle beam laydown comprising transition cells supported by a transition hop cycle for transition between the first hop cycle and the second hop cycle.

In response, applicant's attention is directed to the examiner's response to the applicant's remarks page 11 above.

On page 12 of applicant's remarks, applicant further argues that Takahashi does not teach two or more hop cycle.

The examiner, however, disagrees. In Takahashi, column 3, lines 51-53, "a plurality of predetermined radio frequencies are hoped at regular time interval" and column 3, lines 56-55 "a radio frequencies is replaced with another hopping pattern from the next hopping timing". Therefore, Takahashi does indeed teach two or more hop cycles.

On page 13 of applicant's remarks, applicant further argues that Takahashi does not teach a waveform generator producing a transition downlink beam.

The examiner, however, disagrees. Takahashi does indeed teach a waveform generator producing a transition downlink beam, see column 1, lines 24-28, clearly states "A hoping pattern generator in transmitter side generates a substantially random sequence of frequency value", also see fig.11a, frequency synthesizer 54 for generating

downlink beam. In addition, applicant's attention to a transition downlink beam is directed to the examiner's response above.

On page 14 of applicant's remarks, applicant further argues that Martin does not teach at least one switch directing a transition downlink beam between the third feed paths to transition cells.

The examiner, however, disagrees. Martin teaches the switch, see column 1, lines 62-64, "An airborne switching node couple to the aircraft includes a phased array antenna that electrically directs a number of beams to the cells in the service region."

Takahashi teaches transition downlink beam between the third feed paths to transition cells (see examiner's response to the applicant's remarks page 11 above).

Therefore, the combination of Takahashi and Martin does indeed teach at least one switch directing a transition downlink beam between the third feed paths to transition cells.

On page 14 of applicant's remarks, applicant further argues that Martin does not mention or use of a transition hop cycle or transition cells.

Takahashi (not Martin) teaches this claimed limitation (see examiner's response to the applicant's remarks page 11 above).

On page 14 of applicant's remarks, applicant further argues that neither Takahashi or Martin teach or suggest the limitation recited in applicant's independent claim 17.

In response, applicant's attention is directed to the rejection of claim 17 above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Scheinert (US 6,459,900) teaches methods of operating arrangement of base transceiver stations in an area-covering network.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (703) 605-5164. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Nghi H. Ly

01/08/04

CHARLES APPIAH
PRIMARY EXAMINER